CHARISMA

CHARISMA NEWS

#6 – May 2017

Editorial

Dear Reader,

This is the sixth issue of CHARISMA News, the newsletter of the Horizon 2020 5G-PPP Project CHARISMA: **C**onverged **H**eterogeneous **A**dvanced 5G Cloud-**R**AN Architecture for **I**ntelligent and **S**ecure **M**edia **A**ccess.

This edition focuses on the latest CHARISMA results and the dissemination activities that have taken place in the past few months.

I hope you will find the contents of this newsletter interesting. Your comments and suggestions are, as always, appreciated.

Dr. Theodoros Rokkas (INCITES CONSULTING, trokkas at incites.eu), Editor

Project results & activities

Refined architecture

Deliverable D5.5 "Business model analysis report" is now available on the CHARISMA website. The deliverable provides a 5G business modelling analysis for future 5G deployment, based on the technical features of the CHARISMA architecture. This document complements the information already provided in the deliverable D5.4 (Roadmapping to CHARISMA and 5G networking) and to be provided in the deliverable D5.6 (Techno-economic analysis report).

The document D5.5 provides a 5G business model point-of-view on the basis of the actual environment and the infrastructures deployed in different European countries. It also describes the progress in the deployment of broadband connectivity and how the market has been growing in recent years according to the availability of new services and the emerging needs and expectations of end users, beginning from the initial DSL connections up to the advent of NGA connections.

The business model analysis focuses on the three features, which CHARISMA was specially designed to promote: Low Latency, Security, and Open Access, which together will enable the emergence of new 5G business models and commercial opportunities.

The Open Access concept for infrastructure sharing allows infrastructure owners to dynamically share their resources (virtual and physical) in an isolated way, among several network operators so as to offer different services to their customers.

Low Latency improves both end-to-end connectivity performance as well caching download speeds. Here, caching opens a new space of 5G business opportunities for both operators, and content and service providers.

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Regarding Security, CHARISMA implements a holistic management platform, combining cloud, network slicing, SDN and NFV technologies while focusing on the delivery of end-to-end security across all layers of the converged and virtualised open access network.

The business model consists of a description of all the business players, their roles and relationships, their relative positioning within the value network, and a description of the cost structure and possible sources of revenues. In our study, specific companies, internal value chains, marketing models and sources of revenue have not been specified.

In the deliverable D5.5, the concept of a value network has been adopted, instead of the more conventional value chain approach that is more company specific. The definition of value networking that was used, is that of a network of relationships generating economic and other types of value through dynamic exchanges, that may be tangible or intangible, and that occurs between two or more participating players.

The following terms were used in the business model:

- **Role**: The functionalities of each player that participates in the business model. Players can take one or more of these roles;
- **Relationship**: This illustrates the interaction between two roles or players in the model;

- **Revenue model**: Describes the revenue streams for a player in the model.

The roles that have been included are presented in the following table:

Role	Description
Broker	An intermediary between players.
Device Vendor	A vendor that provide devices to end-users (mobile phones, tablets, IoT devices, etc.)
End Customer	A consumer of services as provided in the ecosystem; either a single (B2C) user or a business entity (B2B relationship).
Fixed Network Operator	An entity that has the ownership and management of a fixed network (core and access network). It provides (fixed) connectivity to end customers.
ICT Equipment Vendor	An entity that sells ICT equipment. It can be either a manufacturer of, or a reseller of the equipment.
ICT Infrastructure Provider	An entity that owns ICT equipment (resources), and provides these resources to operators.
Mobile Network Operator	An entity that has the ownership and management of a mobile network, and provides (mobile) connectivity to end customers.
Network Function Provider	An entity that develops network functions, and provides them to operators.
Service Provider	An entity that provides services to end customers using the connectivity

Role	Description
	provided by the operators.
Virtual Network Operator	An entity that doesn't own its own network resources. In order to provide connectivity services it must make an agreement with the operators (fixed or mobile) and use their network resources.

One of the crucial parts in the business model is the understanding of the relationships among the players participating in the ecosystem. All the relationships that are identified within the CHARISMA concept are illustrated in figure 1.

Dissemination Activities

OFC 2017

Dr. Kai Habel from HHI has presented the paper: "100G OFDM-PON for Converged 5G Networks: From Concept to Realtime Prototype" at the Optical Networking and Communication Conference & Exhibition (OFC 2017) that was held on Los Angeles. The paper presents a 5G implementation concept for a 100G OFDM-PON. A real-time OLT prototype and an ONU with partial bandwidth detection were presented along with experimental results.
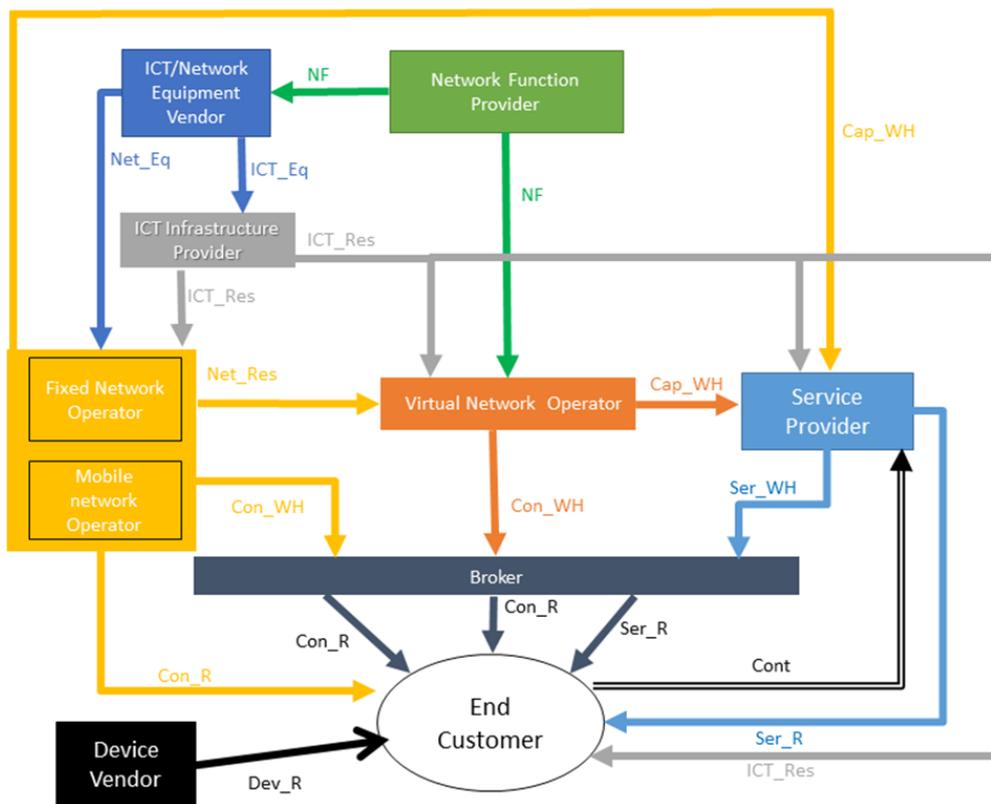

Figure 1: CHARISMA Reference Business Model Relationships

IEEE 5GMan 2017

The paper "Cache peering in multi-tenant 5G networks" was presented at the Second IFIP/IEEE International Workshop on Management of 5G Networks (5GMan 2017) at Lisbon, Portugal. The paper focuses on the synergies in the form of cache peering relationships between co-located Virtual Operators. A close look at the management and orchestration requirements of the envisioned 5G services in addressing the emerging challenges was presented.

Workshop at EuCNC

CHARISMA is collaborating with the 5G-PPP Phase 1 projects SESAME, COHERENT, VirtuWind, NORMA, 5GEx, SPEED-5G, SELFNET and mmMAGIC in organising a workshop on "Business Models and Techno-Economic Analysis for 5G Networks" at the EuCNC 2017 conference at Oulou, Finland.

The workshop will focus on relevant business- and techno-economic aspects of future 5G networking. It will provide an insight into the business impacts and opportunities from the deployment of 5G networks for all actors in the telecommunications ecosystem such as verticals, incumbent and new operators, service providers, application developers, content providers, regulators, equipment manufacturers etc. The potential for new roles such as brokers, aggregators and marketplaces, will also be discussed.

The workshop will consider contributions coming from collaborative, research-funded projects under the H2020 umbrella, which include both the European funded projects, e.g. the 5G-PPP Phase I set, but also the EU-Japan, EU-Korea and EU-Brazil co-funded schemes, so as to offer the broadest possible technical as well as geographical coverage of business models and analysis of 5G networking worldwide.

5G networks possess the promise to address many of the existing limitations of current networking, as well as to provide improvements of several aspects and introduce new functionalities and business models. Network softwarization, virtualization and multi-tenancy are some of the improvements associated with 5G, that can create new business opportunities for traditional telecom operators and new actors, such as service providers, software developers, brokers, startups and SMEs. The session will address these new business opportunities and will present and debate new business models.

Paper submission is until **April 14th 2017**. More info at:http://www.charisma5g.eu/index.php/workshop-in-business-models-and-techno-economic-analysis-for-5g-networks/

About CHARISMA

The CHARISMA project is funded by the European Commission (Horizon 2020 program) within the 5G Public-Private Partnership (5G-PPP) initiative under the grant agreement No: 671704.